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(54) ELECTROLYTIC OZONE GENERATOR

(57) Abstract:

PURPOSE: To stably and efficiently generate high-quality ozone over a long period of time by superposing a solid platinum anode and gold cathode provided with vent parts on both surfaces of a specific solid electrolyte film and impressing a specific DC voltage between the two electrodes, thereby electrolyzing water.

CONSTITUTION: The electrode assembly constituted by superposing an electrode body 10 and a mating side electrode body 12 are superposed on both surfaces of the solid electrolyte film 1 and crimping these electrodes by air permeable 'Teflon(R)' plates 11, 13 in pressurized contact therewith is disposed in a water tank 14. A cation exchange membrane of a fluorine system having 100 to 800 μ thickness is used for the above-mentioned solid electrolyte film 1. The electrode 10 on the anode side thereof has $\geq 50\%$ vent parts and in common use as a catalyst formed of solid platinum in the contact part with the solid electrolyte film 1. The mating side electrode body 12 on the cathode side has $\geq 50\%$ vent parts and is constituted of

gold in the contact part with the solid electrolyte film 1. Water is injected from an inlet 15 into the water tank 14 up to the water surface 16 in which the electrode bodies 10, 12 are submerged. The two electrodes 10, 12 are impressed with 6 to 30V DC voltage via conductors 8, 9 from a power source 20. The water is electrolyzed in this way and the gaseous mixture composed of the ozone and oxygen is taken out of an anode side gas outlet 17 and hydrogen is taken out of a cathode side gas outlet 18.

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